

9.9

10/812586

STIC search

We claim:

1. A process for recovery of sodium thiocyanate from industrial process solution containing undesirable components such as organic or inorganic compounds, color imparting ions and bivalent salts by membrane based nanofiltration technique said process comprising the steps of passing the industrial process solution as a feed solution through a nanofiltration member with simultaneous application of positive pressure to provide a pass solution and a permeate solution, wherein the permeate solution is substantially devoid of the undesirable components and evaporating the permeate solution to obtain sodium thiocyanate.
2. A process as claimed in claim 1 wherein the feed solution contains undesired components of bivalent, color imparting ions and other organic and inorganic compounds.
3. A process as claimed in claim 1 wherein the feed solution contains sodium thiocyanate in a concentration in excess of 100gpl.
4. A process as claimed in claim 1 wherein the feed solution contains sodium thiocyanate in a concentration between 110 gpl and 120 gpl.
5. A process as claimed in claim 1 wherein organic components present in the feed solution is selected from the group consisting of β -Sulfo propionic acid and β -Sulfo propionitrile.
6. A process as claimed in claim 1 wherein the desired component in permeate is sodium thiocyanate.
7. A process as claimed in claim 1, wherein the process may comprise of multiple stages wherein the pass solution from a previous stage is diluted using distilled water and used as feed solution for a next stage.
8. A process as claimed in claim 1 and 7, wherein the feed solution or the diluted pass solution is passed through one or more nanofiltration membrane modules connected in series so as to produce second and/or subsequent pass solutions, consecutively, which are then finally disposed.



9. A process as claimed in claim 1, wherein the nanofiltration membrane used is selected from the group consisting of cellulose triacetate membrane, polyamide membrane and hydrophilised polyamide membrane.
10. A process as claimed in claim 1, wherein the nanofiltration membrane has active membrane area of about 1m^2 .
11. A process as claimed in claim 1, wherein the pressure applied to the feed solution at the time of passing the same through the nanofiltration membrane is equal to or greater than osmotic pressure difference between the feed/pass solution on one side and the permeate solution of the other side of the membrane.
12. A process as claimed in claim 1, wherein the process is operated under flux whose value is in the range of 25 to $40\text{ Lm}^2\text{hr}^{-1}$.

=> file reg

FILE 'REGISTRY' ENTERED AT 12:17:25 ON 18 JUL 2006
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=> display history full 11-

FILE 'REGISTRY' ENTERED AT 11:08:23 ON 18 JUL 2006

E SODIUM THIOCYANATE/CN
L1 1 SEA "SODIUM THIOCYANATE"/CN
E CELLULOSE TRIACETATE/CN
L2 1 SEA "CELLULOSE TRIACETATE"/CN OR "CELLULOSE TRIACETATE
POLYMER"/CN
E BETA-SULFOPROPIONIC ACID/CN
E 2-SULFOPROPIONIC ACID/CN
L3 1 SEA "2-SULFOPROPIONIC ACID"/CN
E 2-SULFOPROPIONITRILE/CN
E B-SULFOPROPIONITRILE/CN
E PROPIONITRILE, 2-SULFO-/CN
E PROPIONITRILE, B-SULFO-/CN

FILE 'LCA' ENTERED AT 11:17:07 ON 18 JUL 2006

L4 2452 SEA (RECOVER? OR RECLAMAT? OR RECLAIM? OR RETRIEV? OR
SALVAG? OR REGENERAT? OR RECONDITION? OR REFORM? OR
RECONSTITUT? OR REUSE# OR REUSING# OR RECYCL? OR
REPROCESS?)/BI,AB
L5 3 SEA (RE(W) (COVER? OR CLAMAT? OR CLAIM? OR GENERAT? OR
CONDITION? OR FORM? OR CONSTITUT? OR USE# OR USING# OR
CYCL? OR PROCESS?))/BI,AB
L6 9537 SEA (PURIF? OR SEPARAT? OR SEP# OR ISOLAT? OR FILT? OR
MICROFILT? OR ULTRAFILT? OR SIEVE? OR CHROMATOG?)/BI,AB
L7 0 SEA NANOFILT?

FILE 'HCA' ENTERED AT 11:22:27 ON 18 JUL 2006

L8 175 SEA (L4 OR L5 OR L6 OR L7) (2A) (L1 OR (SODIUM# OR
NA) (W) THIOCYANATE# OR NASCN)
L9 765531 SEA MEMBRAN?
L10 4031 SEA NANOFILT? OR NANO(2A)FILT?
L11 146 SEA L3 OR ?SULFOPROPIONIC? OR ?SULFOPROPIONITRIL?

L12 48008 SEA L2 OR CELLULOSE#(2A)(ACETATE# OR TRIACETATE#)
L13 168501 SEA POLYAMIDE# OR POLY(A)AMIDE#
L14 12 SEA L8 AND L9
L15 3 SEA L8 AND L10
L16 1 SEA L8 AND L11
L17 0 SEA L8 AND L12
L18 0 SEA L8 AND L13
SEL L16 1 RN

FILE 'REGISTRY' ENTERED AT 11:55:32 ON 18 JUL 2006

L19 6 SEA (107-67-5/BI OR 44826-45-1/BI OR 540-72-7/BI OR
7439-89-6/BI OR 7440-70-2/BI OR 7757-82-6/BI)
L20 4 SEA L19 AND S/ELS
L21 3 SEA L20 NOT L1
L22 2 SEA L21 AND C/ELS

FILE 'HCA' ENTERED AT 12:04:35 ON 18 JUL 2006

L23 49 SEA L22
L24 1 SEA L23 AND L8
L25 6589 SEA L1 OR (SODIUM# OR NA)(W)THIOCYANATE# OR NASCN
L26 1 SEA L23 AND L25
L27 338 SEA L25 AND L9
L28 3 SEA L25 AND L10
L29 1 SEA L25 AND L11
L30 51 SEA L25 AND L12
L31 76 SEA L25 AND L13
L32 7 SEA L27 AND L30
L33 6 SEA L27 AND L31
L34 6 SEA L30 AND L31
L35 31 SEA L14 OR L15 OR L16 OR L24 OR L26 OR L28 OR L29 OR L32
OR L33 OR L34
L36 20 SEA L15 OR L16 OR L24 OR L26 OR L28 OR L29 OR L32 OR L33
OR L34
L37 11 SEA L14 NOT L36

FILE 'WPIX' ENTERED AT 12:14:52 ON 18 JUL 2006

L38 635 SEA L1 OR (SODIUM# OR NA)(W)THIOCYANATE# OR NASCN
L39 1181 SEA NANOFILT? OR NANO(2A)FILT?
L40 1 SEA L38 AND L39

FILE 'JAPIO' ENTERED AT 12:16:09 ON 18 JUL 2006

L41 96 SEA L1 OR (SODIUM# OR NA)(W)THIOCYANATE# OR NASCN

L42 116 SEA NANOFILT? OR NANO(2A)FILT?
L43 0 SEA L41 AND L42

=> file wpix

FILE 'WPIX' ENTERED AT 12:17:43 ON 18 JUL 2006
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FILE LAST UPDATED: 14 JUL 2006 <20060714/UP>
MOST RECENT DERWENT UPDATE: 200645 <200645/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

=> d l40 1 max

L40 ANSWER 1 OF 1 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN
AN 2005-722574 [74] WPIX
DNC C2005-219904
TI Recovery of **sodium thiocyanate** from industrial
process solution comprises passing industrial process solution as
feed solution through **nanofiltration** member with
application of positive pressure.
DC A88 D15 E34 J01
IN BIDURU, S; DURAISWAMY, S; GORUGANTU, S M; MACHIRAJU, R; SRIDHAR, S;
SUNDERGOPAL, S
PA (COUL) COUNCIL SCI & IND RES SOUTH AFRICA; (BIDU-I) BIDURU S;
(DURA-I) DURAISWAMY S; (GORU-I) GORUGANTU S M; (MACH-I) MACHIRAJU R;
(SRID-I) SRIDHAR S
CYC 109
PI US 2005214192 A1 20050929 (200574)* 12 C01B021-086
EP 1586562 A1 20051019 (200574)# EN C07C331-04
R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LT
LU LV MC MK NL PL PT RO SE SI SK TR
WO 2005092793 A1 20051006 (200574) EN C01C003-20
RW: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE
IT KE LS LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR
TZ UG ZM ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU
CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN
IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW
MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY

TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

ADT US 2005214192 A1 US 2004-812586 20040329; EP 1586562 A1 EP
2004-251891 20040330; WO 2005092793 A1 WO 2004-IB3504 20041026

PRAI US 2004-812586 20040329; EP 2004-251891 20040330

IC ICM C01B021-086; C01C003-20; C07C331-04
ICS B01D061-02

AB US2005214192 A UPAB: 20051117

NOVELTY - **Sodium thiocyanate** is recovered from industrial process solution by passing industrial process solution as feed solution through a **nanofiltration** member with application of positive pressure to provide pass solution and permeate solution, and evaporating the permeate solution to obtain **sodium thiocyanate**. The permeate solution is devoid of undesirable components.

USE - Used in the recovery of **sodium thiocyanate** from industrial process solution.

ADVANTAGE - The invention involves intermittent dilution of the feed with deionized water to facilitate maximum possible recovery of **sodium thiocyanate** in permeate with maximum rejection of impurities. It reduces color of the permeate solution. It is able to identify a chemically resistant membrane, which yields maximum recovery of **sodium thiocyanate** at optimum flux with highest degree of impurity and color rejection.

DESCRIPTION OF DRAWING(S) - The figure is a diagrammatic flow sheet of a single stage **nanofiltration** membrane system.

Tank 1

Pump 4

Module 6

Recycle conduit 14

Feed conduit 15

Permeate stream conduit 16

Dwg.1/3

TECH US 2005214192 A1UPTX: 20051117

TECHNOLOGY FOCUS - CHEMICAL ENGINEERING - Preferred Properties: The feed solution contains undesired components of bivalent, color imparting ions, and other organic and inorganic compounds. It contains 100, preferably 110-120 g/l **sodium thiocyanate**. Preferred Compositions: Organic components present in the feed solution are consisting of beta-Sulfo propionic acid and beta-Sulfo propionitrile. The desired component in permeate is **sodium thiocyanate**. Preferred Methods: The inventive recovery may comprise of multiple stages in which the pass

solution from a previous stage is diluted using distilled water and used as feed solution for a next stage. The feed solution or the diluted pass solution is passed through **nanofiltration** membrane modules connected in series to produce second and/or subsequent pass solutions, consecutively, which are then finally disposed. Preferred Materials: The **nanofiltration** membrane is consisting of cellulose triacetate membrane, polyamide membrane, or hydrophilized polyamide membrane.

=> file hca

FILE 'HCA' ENTERED AT 12:18:03 ON 18 JUL 2006

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=> d l36 1-20 cbib abs hitstr hitind

L36 ANSWER 1 OF 20 HCA COPYRIGHT 2006 ACS on STN

143:308653 **Recovery of sodium thiocyanate**

from industrial process solution using **nanofiltration**

technique. Sridhar, Sundergopal; Gorugantu, Suryanarayana Murthy; Duraiswamy, Suhanya; Biduru, Smitha; Machiraju, Ramakrishna (India).

U.S. Pat. Appl. Publ. US 2005214192 A1 20050929, 12 pp.

(English). CODEN: USXXCO. APPLICATION: US 2004-812586 20040329.

AB The invention relates to a membrane-based **nanofiltration** process for **sepg. sodium thiocyanate** (

NaSCN) from industrial soln. contg. impurities such as

β - **sulfopropionic acid**, β -

sulfopropionitrile, sodium sulfate and salts of iron and

calcium in a single step to obtain a colorless aq. soln. for spinning of acrylic fiber in textile industry.

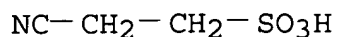
IT 107-67-5 44826-45-1

(**recovery of sodium thiocyanate**

from industrial process soln. using **nanofiltration** technique)

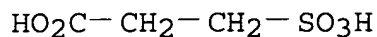
RN 107-67-5 HCA

CN Ethanesulfonic acid, 2-cyano- (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 44826-45-1 HCA

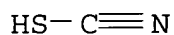
CN Propanoic acid, 3-sulfo- (9CI) (CA INDEX NAME)



IT 540-72-7P, Sodium thiocyanate
(recovery of sodium thiocyanate
from industrial process soln. using nanofiltration
technique)

RN 540-72-7 HCA

CN Thiocyanic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)



● Na

IC ICM C01B021-086

INCL 423366000

CC 49-9 (Industrial Inorganic Chemicals)
Section cross-reference(s): 40, 47

ST **recovery sodium thiocyanate** industrial
process soln **nanofiltration**

IT Filtration
(**nanofiltration; recovery of sodium
thiocyanate** from industrial process soln. using
nanofiltration technique)

IT Membrane **filters**
(**recovery of sodium thiocyanate**
from industrial process soln. using **nanofiltration**
technique)

IT Acrylic fibers, uses
(**recovery of sodium thiocyanate**
from industrial process soln. using **nanofiltration**
technique)

IT 107-67-5 7439-89-6D, Iron, salts 7440-70-2D, Calcium,

salts 7757-82-6, Sodium sulfate, occurrence 44826-45-1
(recovery of sodium thiocyanate
from industrial process soln. using nanofiltration
technique)

IT 540-72-7P, Sodium thiocyanate
(recovery of sodium thiocyanate
from industrial process soln. using nanofiltration
technique)

L36 ANSWER 2 OF 20 HCA COPYRIGHT 2006 ACS on STN

141:12248 Modified Factor IX preparation. Bigler, Douglas E.; Kundu,
Sourav K.; Lind, Holger; Schulte, Stefan (USA). U.S. Pat. Appl.
Publ. US 2004106779 A1 20040603, 10 pp. (English). CODEN: USXXCO.
APPLICATION: US 2002-309877 20021203.

AB The present invention relates to a method of purifn. and
stabilization of Factor IX by using anion exchange chromatog. The
Factor IX protein from the chromatog. medium is eluted with a low
ionic strength soln. comprising about 0.35 M to 0.4 M salt, e.g.,
sodium chloride or lithium chloride. The method further comprises
an affinity chromatog. purifn. step using anti-Factor IX monoclonal
antibody, or a viral redn. step. By this method the presence of the
protease and plasma hyaluronan binding protease is decreased which
minimizes the cleavage of Factor IX and enhances the yield of Factor
IX in the purifn. process.

IT 540-72-7, Sodium thiocyanate
(purifn. and stabilization of Factor IX prepn. by anion
exchange chromatog.)

RN 540-72-7 HCA

CN Thiocyanic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

HS-C \equiv N

● Na

IC ICM C07K014-745

INCL 530384000

CC 63-3 (Pharmaceuticals)

IT Filtration

(nanofiltration; purifn. and stabilization of Factor IX

prepn. by anion exchange chromatog. and **nanofiltration**)

IT 540-72-7, **Sodium thiocyanate**

10043-52-4, Calcium chloride, uses

(**purifn.** and stabilization of Factor IX prep. by anion exchange chromatog.)

L36 ANSWER 3 OF 20 HCA COPYRIGHT 2006 ACS on STN

138:358223 Effectiveness of alternative treatments for reducing potential viral contaminants from plasma-derived products. Chandra, Sudhish; Groener, A.; Feldman, F. (Aventis Behring, King of Prussia, PA, USA). Thrombosis Research, 105(5), 391-400 (English) 2002. CODEN: THBRAA. ISSN: 0049-3848. Publisher: Elsevier Science Inc..

AB A review. An issue of great importance and continuing concern with regard to all products derived from human plasma is their safety from potential contaminants in the source material from which they are purified. Since viral contaminants are a major safety consideration with these products, a no. of different methods, including dry heating, vapor heating, filtration and **nanofiltration**, UV and gamma irradiation, pasteurization, solvent/detergent (S/D) treatment, **sodium thiocyanate** treatment, and **chromatog.** (immunoaffinity, metal chelation, affinity, and ion exchange), have been developed to remove or inactivate potentially contaminating viruses. Pasteurization and S/D treatment have emerged as the dominant viral inactivation methods. Results summarized in this review demonstrate that pasteurization is the broadest and most rigorous currently available method for removal of potential viral contaminants from plasma-derived products. S/D treatment requires control over a large no. of manufg. parameters and has no ability to inactivate nonlipid-enveloped viruses. Pasteurization requires control over only a small no. of manufg. variables, is easily monitored, and remains effective even if deviations are encountered from specified protein and stabilizer concns. and temp. In addn., pasteurization is effective against a wide range of lipid- and nonlipid-enveloped viruses.

CC 63-0 (Pharmaceuticals)

L36 ANSWER 4 OF 20 HCA COPYRIGHT 2006 ACS on STN

138:272902 Application of **membrane** separation impurity removal process in PAN production. Yuan, Hua-bin; Jin, Zhen (Chemical Fiber Plant, Lanzhou Petrochemical Co., PetroChina, Lanzhou, 730060, Peop. Rep. China). Shihua Jishu Yu Yingyong, 20(6), 385-387, 391

(Chinese) 2002. CODEN: SJYIF4. ISSN: 1009-0045. Publisher: Shihua Jishu Yu Yingyong Bianjibu.

AB The one-step impurity removal process was tested for PAN (polyacrylonitrile) fiber and compared with several other removal processes. The **membrane** sepn. had good effect on impurity of **NaSCN** soln., and the extn. process could be replaced by **membrane** process. The application of **membrane** sepn. impurity removal process, such as the purifn. of distillate, preconcn. in solvent evapn., was discussed.

IT 540-72-7P

(solvent; application of **membrane** sepn. impurity removal process in polyacrylonitrile fiber prodn.)

RN 540-72-7 HCA

CN Thiocyanic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

HS- $\text{C}\equiv\text{N}$

● Na

CC 40-2 (Textiles and Fibers)

ST polyacrylonitrile fiber prodn impurity removal **membrane** sepn

IT Impurities

Membranes, nonbiological
Separation

(application of **membrane** sepn. impurity removal process in polyacrylonitrile fiber prodn.)

IT Acrylic fibers, miscellaneous

(application of **membrane** sepn. impurity removal process in polyacrylonitrile fiber prodn.)

IT 25014-41-9, Polyacrylonitrile

(fiber, **membrane**; application of **membrane** sepn. impurity removal process in polyacrylonitrile fiber prodn.)

IT 9003-53-6, Polystyrene 9003-54-7, Acrylonitrile-styrene copolymer
9004-35-7, **Cellulose acetate**

(**membrane**; application of **membrane** sepn. impurity removal process in polyacrylonitrile fiber prodn.)

IT 540-72-7P

(solvent; application of **membrane** sepn. impurity

removal process in polyacrylonitrile fiber prodn.)

L36 ANSWER 5 OF 20 HCA COPYRIGHT 2006 ACS on STN

138:91298 Metal-chelated **polyamide** hollow fibers for human serum albumin separation. Uzun, Lokman; Denizli, Adil (Department of Chemistry, Biochemistry Division, Hacettepe University, Ankara, Turk.). Journal of Applied Polymer Science, 86(13), 3346-3354 (English) 2002. CODEN: JAPNAB. ISSN: 0021-8995. Publisher: John Wiley & Sons, Inc..

AB Microporous **polyamide** hollow fibers were modified by acid hydrolysis to amplify the reactive groups and subsequent binding of Cibacron Blue F 3GA, then different metal ions (Cu^{2+} , Ni^{2+} , and Co^{2+}) were loaded thereto to form the metal chelates. The hollow fibers were characterized by SEM and the effect of pH and initial concn. of human serum albumin (HSA) on the adsorption of HSA to the metal-chelated hollow fibers were examd. in a batch system. Dye- and metal-chelated hollow fibers had a higher HSA adsorption capacity and showed less nonspecific protein adsorption. The nonspecific adsorption of HSA onto the **polyamide** hollow fibers was 6.0 mg/g. Cibacron Blue F 3GA immobilization onto the hollow fibers increased HSA adsorption up to 147 mg/g. Metal-chelated hollow fibers showed further increases in the adsorption capacity. The max. adsorption capacities of Co^{2+} -, Cu^{2+} -, and Ni^{2+} -chelated hollow fibers were 195, 226, and 289 mg/g, resp. The recognition range of metal ions for HSA from human serum followed the order: $\text{Ni(II)} > \text{Cu(II)} > \text{Co(II)}$. A higher HSA adsorption was obsd. from human serum (324 mg/g). A significant amt. of the adsorbed HSA (up to 99%) was eluted for 1 h in the elution medium contg. 1.0M sodium thiocyanide (NaSCN) at pH 8.0 and 25 mM EDTA at pH 4.9. Repeated adsorption-desorption processes showed that these metal-chelated **polyamide** hollow fibers were suitable for HSA adsorption.

CC 40-10 (Textiles and Fibers)

Section cross-reference(s): 9, 63

ST **polyamide** hollow fiber metal chelate human serum albumin sepn

IT Concentration (condition)
pH

(effect on human serum albumin adsorption by metal-chelated **polyamide** hollow fibers)

IT Fibers

(hollow, **polyamide** fibers, reaction product with

- Cibacron Blue F 3GA, metal ion complexes; metal-chelated **polyamide** hollow fibers for human serum albumin sepn.)
- IT Adsorption
(of human serum albumin by metal-chelated **polyamide** hollow fibers)
- IT Desorption
Membrane, biological
(of metal-chelated **polyamide** hollow fibers for human serum albumin sepn.)
- IT **Polyamide** fibers, uses
(reaction product with Cibacron Blue F 3GA, metal ion complexes; metal-chelated **polyamide** hollow fibers for human serum albumin sepn.)
- IT Albumins, processes
(serum; metal-chelated **polyamide** hollow fibers for human serum albumin sepn.)
- IT 14701-22-5D, Nickel ion(2+), complex with Cibacron Blue F 3GA-modified **polyamide** hollow fibers, processes
15158-11-9D, Copper ion(2+), complex with Cibacron Blue F 3GA-modified **polyamide** hollow fibers, processes
22541-53-3D, Cobalt ion(2+), complex with Cibacron Blue F 3GA-modified **polyamide** hollow fibers, processes
(metal-chelated **polyamide** hollow fibers for human serum albumin sepn.)
- IT 12236-82-7D, Cibacron Blue F 3GA, reaction product with **polyamide** hollow fibers, metal ion complexes
(metal-chelated **polyamide** hollow fibers for human serum albumin sepn.)

L36 ANSWER 6 OF 20 HCA COPYRIGHT 2006 ACS on STN

137:2114 Comparison of adsorption performances of metal-chelated **polyamide** hollow fibre **membranes** in lysozyme separation. Senel, Serap; Kassab, Ahmed; Arica, Yakup; Say, Ridvan; Denizli, Adil (Department of Chemistry, Hacettepe University, Beytepe, Ankara, Turk.). Colloids and Surfaces, B: Biointerfaces, 24(3-4), 265-275 (English) 2002. CODEN: CSBBEQ. ISSN: 0927-7765. Publisher: Elsevier Science B.V..

AB Com. available microporous **polyamide** hollow fibers are modified by acid hydrolysis to activate the reactive groups and subsequently binding of the ligand Cibacron Blue F3GA. The Cibacron Blue F3GA-modified hollow fibers were loaded with different metal ions (i.e. Zn(II), Cu(II), Ni(II)) to form the metal chelate. The

internal polymer matrix was characterized by SEM. The effects of pH, initial concn. of lysozyme, metal type and temp. on the adsorption of lysozyme to the metal-chelated hollow fibers were examd. in a batch reactor. The non-specific adsorption of lysozyme onto the **polyamide** hollow fibers was 1.8 mg/g. Cibacron Blue F3GA immobilization increased the lysozyme adsorption up to 62.3 mg/g. Metal-chelated hollow fibers showed a significant increase of the adsorption efficiency. Lysozyme adsorption capacities of Zn(II), Cu(II) and Ni(II)-chelated hollow fibers were different. The max. capacities of Zn(II), Cu(II) or Ni(II)-chelated hollow fibers were 144.2, 75.2 and 68.6 mg/g, resp. Significant amt. of the adsorbed lysozyme (up to 97%) was eluted in 1 h in the elution medium contg. 1.0 M **NaSCN** at pH 8.0 and 25 mM EDTA at pH 4.9. Repeated adsorption-desorption process showed that this novel metal-chelated **polyamide** hollow fibers are suitable for lysozyme adsorption.

IT 540-72-7, **Sodium thiocyanate**

(**NaSCN** promotes desorption of lysozyme on metal-chelated **polyamide** hollow fiber **membranes** modified with Cibacron Blue F3GA)

RN 540-72-7 HCA

CN Thiocyanic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

HS- $\text{C}\equiv\text{N}$

● Na

CC 6-3 (General Biochemistry)

Section cross-reference(s): 7

ST lysozyme adsorption metal chelate **polyamide** fiber

IT **Polyamide** fibers, uses

(adducts with Cibacron Blue F3GA; metal-chelated **polyamide** hollow fiber **membranes** modified with Cibacron Blue F3GA ligand permit lysozyme sepn. by adsorption/desorption process)

IT Adsorption

(protein; metal-chelated **polyamide** hollow fiber **membranes** modified with Cibacron Blue F3GA ligand permit lysozyme sepn. by adsorption/desorption process)

IT 540-72-7, Sodium thiocyanate

(NaSCN promotes desorption of lysozyme on metal-chelated **polyamide** hollow fiber **membranes** modified with Cibacron Blue F3GA)

IT 7440-02-0, Nickel, uses 7440-50-8, Copper, uses 7440-66-6, Zinc, uses 12236-82-7D, Cibacron Blue F3GA, adducts with **polyamide** hollow fiber

(metal-chelated **polyamide** hollow fiber **membranes** modified with Cibacron Blue F3GA ligand permit lysozyme sepn. by adsorption/desorption process)

IT 9001-63-2, Lysozyme

(metal-chelated **polyamide** hollow fiber **membranes** modified with Cibacron Blue F3GA ligand permit lysozyme sepn. by adsorption/desorption process)

L36 ANSWER 7 OF 20 HCA COPYRIGHT 2006 ACS on STN

135:30830 Zinc ion-promoted adsorption of lysozyme to Cibacron Blue F3GA-attached microporous **polyamide** hollow-fiber

membranes. Senel, S.; Say, R.; Arica, Y.; Denizli, A.

(Biochemistry Division, Department of Chemistry, Hacettepe University, Ankara, 06242, Turk.). Colloids and Surfaces, A: Physicochemical and Engineering Aspects, 182(1-3), 161-173 (English) 2001. CODEN: CPEAEH. ISSN: 0927-7757. Publisher: Elsevier Science B.V..

AB Dye-affinity and metal chelate affinity adsorption are increasingly used for protein sepn. Synthetic hollow fiber **membranes** have advantages as support matrixes in comparison to conventional bead supports because they are not compressible and they eliminate internal diffusion limitations. The goal of this study was to explore in detail the performance of hollow fibers composed of modified **polyamide** to which Cibacron Blue F3GA and Zn(II) were attached for adsorption of lysozyme. The polymer matrix was characterized by SEM. These dye-affinity and Zn(II) chelated hollow-fibers were used in the lysozyme adsorption-elution studies. The effects of initial concn. of lysozyme and medium pH on the adsorption efficiency of dye-attached and metal-chelated hollow-fibers were studied in a batch reactor. The effect of Zn(II) loading on lysozyme adsorption was also studied. The non-specific adsorption of lysozyme on the **polyamide** hollow-fibers was 1.8 mg g⁻¹. Cibacron Blue F3GA attachment significantly increased the lysozyme adsorption up to 63.2 mg g⁻¹. Lysozyme adsorption capacity of the Zn(II) chelated hollow-fibers (144.2 mg g⁻¹) was

greater than that of the Cibacron Blue F3GA-attached hollow-fibers. A significant amt. of the adsorbed lysozyme (up to 97%) was eluted in 1 h in the elution medium contg. 1.0 M NaSCN at pH 8.0 and 25 mM EDTA at pH 4.9. In order to examine the effects of sepn. conditions on possible conformational changes of lysozyme structure, fluorescence spectrophotometry was employed. We conclude that dye- and metal-chelate affinity chromatog. with **polyamide** hollow-fibers can be applied for lysozyme adsorption without causing any significant conformational changes and denaturation. Repeated adsorption/elution processes showed that these novel dye-attached and Zn(II) chelated hollow-fibers are suitable for lysozyme adsorption.

CC 9-3 (Biochemical Methods)

Section cross-reference(s): 7

ST lysozyme adsorption **polyamide** hollow fiber
membrane

IT **Membranes**, nonbiological

(hollow-fiber; zinc ion-promoted adsorption of lysozyme to Cibacron Blue F3GA-attached microporous **polyamide** hollow-fiber **membranes**)

IT Adsorption

(protein; zinc ion-promoted adsorption of lysozyme to Cibacron Blue F3GA-attached microporous **polyamide** hollow-fiber **membranes**)

IT **Polyamides**, processes

(reaction products with dye; zinc ion-promoted adsorption of lysozyme to Cibacron Blue F3GA-attached microporous **polyamide** hollow-fiber **membranes**)

IT Affinity chromatography

(zinc ion-promoted adsorption of lysozyme to Cibacron Blue F3GA-attached microporous **polyamide** hollow-fiber **membranes**)

IT 7440-66-6, Zinc, analysis

(zinc ion-promoted adsorption of lysozyme to Cibacron Blue F3GA-attached microporous **polyamide** hollow-fiber **membranes**)

IT 12236-82-7D, Cibacron Blue F3GA, reaction products with
polyamide

(zinc ion-promoted adsorption of lysozyme to Cibacron Blue F3GA-attached microporous **polyamide** hollow-fiber **membranes**)

IT 9001-63-2, Lysozyme 343785-09-1D, PA 386C, reaction products with

dye

(zinc ion-promoted adsorption of lysozyme to Cibacron Blue F3GA-attached microporous **polyamide** hollow-fiber membranes)

L36 ANSWER 8 OF 20 HCA COPYRIGHT 2006 ACS on STN

134:27082 Human serum albumin chromatography by Cibacron Blue F3GA-derived microporous **polyamide** hollow-fiber affinity membranes. Kassab, A.; Yavuz, H.; Odabasi, M.; Denizli, A. (Biochemistry Division, Department of Chemistry, Hacettepe University, Ankara, Turk.). Journal of Chromatography, B: Biomedical Sciences and Applications, 746(2), 123-132 (English) 2000. CODEN: JCBEP. ISSN: 0378-4347. Publisher: Elsevier Science B.V..

AB An affinity dye ligand, Cibacron Blue F3GA was covalently attached onto com. available microporous **polyamide** hollow-fiber membranes for human serum albumin (HSA) adsorption from both aq. solns. and human plasma. Different amts. of Cibacron Blue F3GA were incorporated on the **polyamide** hollow-fibers by changing the dye attachment conditions, i.e. initial dye concn., addn. of sodium carbonate and sodium chloride. The max. amt. of Cibacron Blue F3GA attachment was obtained at 42.5 μ mol g⁻¹ when the hollow-fibers were treated with 3 M HCl for 30 min before performing the dye attachment. HSA adsorption onto unmodified and Cibacron Blue F3GA-derived **polyamide** hollow-fiber membranes was investigated batchwise. The non-specific adsorption of HSA was very low (6.0 mg g⁻¹ hollow-fiber). Cibacron Blue F3GA attachment onto the hollow-fibers significantly increased the HSA adsorption (147 mg g⁻¹ hollow-fiber). The max. HSA adsorption was obsd. at pH 5.0. Higher HSA adsorption was obsd. from human plasma (230 mg HSA g⁻¹ hollow-fiber). Desorption of HSA from Cibacron Blue F3GA derived hollow-fibers was obtained using 0.1 M Tris-HCl buffer contg. 0.5 M NaSCN or 1.0 M NaCl. High desorption ratios (up to 98% of the adsorbed HSA) were obsd. It was possible to reuse Cibacron Blue F3GA derived **polyamide** hollow-fiber without significant decreases in the adsorption capacities.

CC 9-3 (Biochemical Methods)

Section cross-reference(s): 6

ST albumin affinity chromatog Cibacron Blue F3GA **polyamide** membrane

IT Polyamides, analysis

(Cibacron Blue F3GA deriv.; human serum albumin chromatog. by Cibacron Blue F3GA-derived microporous **polyamide** hollow-fiber affinity **membranes**)

- IT **Membranes**, nonbiological
(hollow-fiber; human serum albumin chromatog. by Cibacron Blue F3GA-derived microporous **polyamide** hollow-fiber affinity **membranes**)
- IT Affinity chromatographic stationary phases
Affinity chromatography
Blood plasma
(human serum albumin chromatog. by Cibacron Blue F3GA-derived microporous **polyamide** hollow-fiber affinity **membranes**)
- IT Albumins, biological studies
(serum, human; human serum albumin chromatog. by Cibacron Blue F3GA-derived microporous **polyamide** hollow-fiber affinity **membranes**)
- IT 12236-82-7D, Cibacron Blue F3GA, **polyamide** deriv.
(human serum albumin chromatog. by Cibacron Blue F3GA-derived microporous **polyamide** hollow-fiber affinity **membranes**)

L36 ANSWER 9 OF 20 HCA COPYRIGHT 2006 ACS on STN

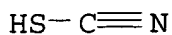
130:224322 Solvent spinning of fibers containing an intrinsically conductive polymer. Kinlen, Patrick J.; Frushour, Bruce G. (Zipperling Kessler & Co. (G.m.b.H & Co.), Germany). PCT Int. Appl. WO 9910574 A1 19990304, 60 pp. DESIGNATED STATES: W: CA, FI, JP, KR; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1998-EP5315 19980824. PRIORITY: US 1997-917660 19970825.

AB A fiber contg. an org. acid salt of an intrinsically conductive polymer (e.g., polyaniline) distributed throughout a matrix polymer is provided along with a method for producing such fibers by spinning a soln. which includes an org. acid salt of an intrinsically conductive polymer, a matrix polymer and a spinning solvent into a coagulation bath comprising a nonsolvent for both the org. acid salt of an intrinsically conductive polymer and the matrix polymer. The intrinsically conductive polymer-contg. fibers typically have elec. cond. $\sim 10^{-5}$ S/cm.

- IT **540-72-7, Sodium thiocyanate**
(aq. solns., solvents; solvent spinning of fibers contg. intrinsically conductive polymers)

RN 540-72-7 HCA

CN Thiocyanic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)



● Na

IT 9012-09-3P, Cellulose triacetate

(fibers; solvent spinning of fibers contg. intrinsically
conductive polymers)

RN 9012-09-3 HCA

CN Cellulose, triacetate (9CI) (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

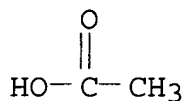
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 64-19-7

CMF C2 H4 O2



IC ICM D01F006-96

ICS D01F006-54; D01F006-90; D01F006-92; D01F006-94; D01F006-46;
D01F006-48

CC 40-2 (Textiles and Fibers)

IT Acetate fibers, uses

Polyamide fibers, uses

Polyester fibers, uses

Polyolefin fibers

Polyurethane fibers

Vinyon fibers

(solvent spinning of fibers contg. intrinsically conductive polymers)

IT 540-72-7, **Sodium thiocyanate**

7646-85-7, Zinc chloride, uses 7664-93-9, Sulfuric acid, uses 7697-37-2, Nitric acid, uses

(aq. solns., solvents; solvent spinning of fibers contg. intrinsically conductive polymers)

IT 9002-86-2P, PVC 9004-34-6P, Cellulose, uses 9012-09-3P,

Cellulose triacetate 25014-41-9P,

Polyacrylonitrile

(fibers; solvent spinning of fibers contg. intrinsically conductive polymers)

L36 ANSWER 10 OF 20 HCA COPYRIGHT 2006 ACS on STN

119:162638 Transport of scandium ion through **cellulose**

triacetate membranes containing quaternary

ammonium salts as carriers. Sugiura, Masaaki; Hirata, Hirofumi (Natl. Inst. Mater. Chem. Res., Tsukuba, 305, Japan). Chemistry Express, 8(7), 519-22 (English) 1993. CODEN: CHEXEU. ISSN: 0911-9566.

AB Sc fluxes across **cellulose triacetate**

membranes contg. mixts. of o-nitrophenyl octyl ether and quaternary ammonium salts possessing 2-4 long alkyl chains were detd. The quaternary ammonium salts acted as carriers of the Sc in the presence of thiocyanates. The flux decreased with increasing length of alkyl chains, and it was also affected by the type of cation of the thiocyanate.

IT 9012-09-3, **Cellulose triacetate**

(**membranes**, scandium permeation through, quaternary ammonium compd. chain length and thiocyanate cation effects on)

RN 9012-09-3 HCA

CN Cellulose, triacetate (9CI) (CA INDEX NAME)

CM 1

CRN 9004-34-6

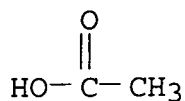
CMF Unspecified

CCI PMS, MAN

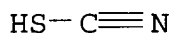
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 64-19-7
CMF C2 H4 O2



IT 540-72-7, **Sodium thiocyanate**
(scandium permeation through **cellulose triacetate membranes** in relation to)
RN 540-72-7 HCA
CN Thiocyanic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)



CC 43-3 (Cellulose, Lignin, Paper, and Other Wood Products)
ST scandium permeation **cellulose triacetate membrane**; quaternary ammonium compd scandium permeation; chain length quaternary scandium permeation; thiocyanate cation effect scandium permeation
IT Quaternary ammonium compounds, properties
(alkyl chain lengths in, scandium permeation through **cellulose triacetate membranes** in relation to)
IT Chains, chemical
(length of, in quaternary ammonium compds., scandium permeation through **cellulose triacetate membranes** in relation to)
IT Permeability and Permeation
(of scandium through **cellulose triacetate membranes**, quaternary ammonium compd. chain length and thiocyanate cation effects on)
IT 2138-24-1, Tetra-n-hexylammonium iodide 3282-73-3,
Di-n-dodecyldimethylammonium bromide 4328-13-6,
Tetra-n-hexylammonium bromide 5137-55-3, Tri-n-octylmethylammonium

chloride 5922-92-9, Tetra-n-hexylammonium chloride 7173-54-8
(alkyl chain lengths in, scandium permeation through
cellulose triacetate membranes in
relation to)

IT 9012-09-3, **Cellulose triacetate**
(**membranes**, scandium permeation through, quaternary
ammonium compd. chain length and thiocyanate cation effects on)

IT 7440-20-2, Scandium, properties
(permeation of, through **cellulose triacetate**
membranes, quaternary ammonium compd. chain length and
thiocyanate cation effects on)

IT 333-20-0, Potassium thiocyanate 540-72-7, **Sodium**
thiocyanate 556-65-0, Lithium thiocyanate 1762-95-4,
Ammonium thiocyanate
(scandium permeation through **cellulose**
triacetate membranes in relation to)

L36 ANSWER 11 OF 20 HCA COPYRIGHT 2006 ACS on STN

118:8904 Separation and concentration of rare earth ions by liquid
membranes. Sugiura, Masaaki (Natl. Chem. Lab. Ind.,
Tsukuba, 305, Japan). Yukagaku, 41(9), 860-6 (Japanese) 1992.
CODEN: YKGKAM. ISSN: 0513-398X.

AB Effects of the carrier type and the **membrane** solvent on
carrier-mediated transport of trivalent rare earth ions through liq.
membranes are described. The liq. **membranes** were
the supported type, and solvent polymeric **membranes**
consisted of **cellulose triacetate** contg. a
plasticizer. In counter-transport of rare earth and H ions using
 β -diketones as carriers, the difference in flux among the rare
earths was slight, with the exception of Sc. In transport using
Hinokitiol (β -isopropyltropolone), the fluxes for the
lanthanides from Sm to Lu were much higher than those from La to Nd.
The flux using flavonol increased with increasing at. no. In these
transport processes, the flux was affected by the compn. of the
membrane solvent and by the pH and added anion in the source
phase. In co-transport of rare earth and thiocyanate ions using
phosphoric acid triesters as carriers, only Sc was transported.

IT 540-72-7, **Sodium thiocyanate**
(source phase contg., rare earth ion flux through
membrane in relation to)

RN 540-72-7 HCA

CN Thiocyanic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

HS-C \equiv N

● Na

- CC 49-9 (Industrial Inorganic Chemicals)
Section cross-reference(s): 78
- ST rare earth ion sepn concn **membrane**; sepn rare earth ion
liq **membrane**; concn rare earth ion liq **membrane**
- IT **Membranes**
(liq., sepn. and concn. by, of rare earth ions)
- IT 78-30-8, Tri-o-tolyl phosphate 78-42-2, Tris(2-ethylhexyl)
phosphate 499-44-5, Hinokitiol 563-04-2 577-85-5,
3-Hydroxyflavone
(carrier, rare earth ion flux through **cellulose**
acetate membrane in relation to)
- IT 126-73-8, Tributyl phosphate, miscellaneous
(carrier, rare earth ion flux through **cellulose**
acetate membrane in relation to)
- IT 93-91-4, Benzoylacetone 120-46-7, Dibenzoylmethane 326-06-7
326-90-9 326-91-0, Thenoyltrifluoroacetone
(carrier, rare earth ion flux through **membranes** in
relation to)
- IT 103-85-5, 1-Phenyl-2-thiourea 140-22-7, Diphenylcarbazide
304-88-1, N-Benzoyl-N-phenylhydroxylamine 538-62-5,
Diphenylcarbazone 574-13-0, Cupron 622-03-7,
Diphenylthiocarbazine 826-81-3, 2-Methyl-8-hydroxyquinoline
1826-28-4 3898-08-6, 1,1-Diphenyl-2-thiourea
(carrier, scandium ion flux through **cellulose**
acetate membrane in relation to)
- IT 7439-91-0, Lanthanum, miscellaneous 7439-94-3, Lutetium,
miscellaneous 7440-19-9, Samarium, miscellaneous 7440-20-2,
Scandium, miscellaneous 7440-65-5, Yttrium, miscellaneous
(flux of, through **cellulose acetate**
membrane and supported liq. **membrane** contg.
 β -diketones as carriers, source-phase pH effect on)
- IT 7440-10-0, Praseodymium, miscellaneous 7440-27-9, Terbium,
miscellaneous 7440-52-0, Erbium, miscellaneous
(flux of, through **cellulose acetate**

- membrane** contg. β -diketones as carriers,
source-phase pH effect on)
- IT 9004-35-7, **Cellulose acetate**
(**membranes**, liq., sepn. and concn. by, of rare earth
ions)
- IT 78-51-3, Tris(2-n-butoxyethyl) phosphate 2528-38-3, Triamyl
phosphate 9016-45-9, Polyoxyethylene nonylphenyl ether
26266-58-0, Span 85 37682-29-4, o-Nitrophenyl octyl ether
(plasticizer contg., rare earth ion flux through
membranes in relation to)
- IT 540-72-7, **Sodium thiocyanate**
1762-95-4, Ammonium thiocyanate 7601-89-0, Sodium perchlorate
7631-99-4, Sodium nitrate, miscellaneous 7647-14-5, Sodium
chloride, miscellaneous
(source phase contg., rare earth ion flux through
membrane in relation to)
- IT 333-20-0, Potassium thiocyanate 556-65-0, Lithium thiocyanate
(source phase contg., scandium ion flux through **membrane**
in relation to)

L36 ANSWER 12 OF 20 HCA COPYRIGHT 2006 ACS on STN

116:213295 Color-changing device for monitoring shelf-life of perishable
products. Patel, Gordhanbhai (JP Laboratories, Inc., USA). U.S. US
5053339 A 19911001, 28 pp. (English). CODEN: USXXAM.
APPLICATION: US 1988-266690 19881103.

AB The indicator has an activator tape and an indicating tape bound
together by water-impermeable pressure-sensitive adhesives. The
activator (e.g. citric acid) can diffuse through the matrix of the
device to react with the indicator (e.g. pentamethoxy
triphenylmethanol) to produce a color change. The device has an
activation energy and rate const. for the color change that are
substantially the same as those for deterioration of a perishable
product such as food in the temp. range of monitoring. The color
intensifies with time and temp. Many different indicator-activator
pairs were tested and the effects of the matrixes contg. these
compds. on the activation energy was examd.

IT 540-72-7, **Sodium thiocyanate**
(color-changing tape contg., as activator, for monitoring
shelf-life of perishable products)

RN 540-72-7 HCA

CN Thiocyanic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

HS-C \equiv N

● Na

IC ICM G01N031-22

INCL 436002000

CC 17-4 (Food and Feed Chemistry)

IT Acrylic polymers, uses

Alkyd resins

Aminoplasts

Epoxy resins, uses

Polyamides, uses

Polycarbonates, uses

Polyesters, uses

Rubber, synthetic

Urethane polymers, uses

(color-changing tape contg., for monitoring shelf-life of perishable products)

IT 102-76-1, Triacetin 111-14-8, Heptanoic acid **540-72-7**,

Sodium thiocyanate 7720-78-7, Ferrous sulfate

7727-54-0, Ammonium persulfate 7757-83-7, Sodium sulfite

50-81-7, Vitamin C, uses 60-01-5, Tributyrin 60-33-3, Linoleic acid, uses

65-85-0, Benzoic acid, uses 124-04-9, Adipic acid, uses 144-55-8, Sodium bicarbonate, uses 497-19-8, Sodium carbonate, uses

(color-changing tape contg., as activator, for monitoring shelf-life of perishable products)

IT 9002-86-2, Polyvinyl chloride 9002-88-4, Polyethylene 9003-07-0,

Polypropylene 9003-35-4, Phenol-formaldehyde polymer 9004-35-7,

Cellulose acetate 108-05-4, Vinyl acetate, uses

(color-changing tape contg., for monitoring shelf-life of perishable products)

L36 ANSWER 13 OF 20 HCA COPYRIGHT 2006 ACS on STN

113:192626 Preparation of polyacrylonitrile-based compositions. Stoy, Vladimir A.; Lovy, Jan; Tong, Shiu Bor (Kingston Technologies, L. P., USA). Eur. Pat. Appl. EP 331521 A2 19890906, 11 pp. DESIGNATED STATES: R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE. (English). CODEN: EPXXDW. APPLICATION: EP 1989-302165 19890303.

PRIORITY: US 1988-164450 19880304.

AB The title compns. comprise a polyacrylonitrile (I) polymer matrix component having morphol. that results from coagulating I polymer mols. from soln., and a water-sol. second component which is interpenetrated in the I matrix. Thus, a soln. of 10% I in a 50% aq. **Na thiocyanate** was cast on a glass plate to give a **membrane**, which was crosslinked by a mixt. of a liq. cyclic silicone monomer and silicone crosslinking agent in the presence of 0.1% aq. NaOH to give a transparent interpenetrating polymer composite. Hydrophilic and rigid lenses with high O permeation could be obtained from this polymer composite.

IT **9012-09-3P, Cellulose triacetate**
(compns. with polyacrylonitrile matrix, prepn. of)

RN 9012-09-3 HCA

CN Cellulose, triacetate (9CI) (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

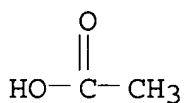
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 64-19-7

CMF C2 H4 O2



IC ICM C08L033-20

ICS C08J003-20; C08J003-00

CC 37-3 (Plastics Manufacture and Processing)

IT 50-29-3P, preparation 61-73-4P, Methylene Blue 115-86-6P,

Triphenyl phosphate **9012-09-3P, Cellulose triacetate** 41375-99-9P, Hexahydronaphthalene

63444-56-4DP, polymers with methacryloylethyl- and trimethylsilyl-terminated d-Me siloxanes 127398-78-1P

(compns. with polyacrylonitrile matrix, prepn. of)

L36 ANSWER 14 OF 20 HCA COPYRIGHT 2006 ACS on STN

109:151707 Coupled transport of zinc ion through **cellulose acetate-plasticizer membranes** made from mulberry xylem. Urita, Shoji; Ota, Teruo; Sugiura, Masaaki; Kikkawa, Masayoshi (Fukushima Seric. Exp. Stn., Fukushima, 960-07, Japan). Nippon Sanshigaku Zasshi, 57(2), 123-8 (Japanese) 1988. CODEN: NISZAQ. ISSN: 0037-2455.

AB The coupled transport of Zn(II) through **cellulose acetate-plasticizer membranes** made from mulberry xylem was examd., using a mixt. of tributoxyethyl phosphate and o-nitrophenyloctyl ether as a plasticizer and bathophenanthroline as a carrier of Zn(II) in the **membrane**. The flux of Zn through the **membrane** increased with an increase in concn. of the carrier in **membrane**, concn. of NaCl added in soln. as the source of removal, or concn. of Zn(II). The double reciprocal plots of the Zn flux vs. [NaCl] or [Zn(II)] in soln. were linear. Upon using NaSCN as the source of removal, the Zn flux reached a high value of 29 ± 10^{-8} mol cm⁻² h⁻¹.

IT 540-72-7, **Sodium thiocyanate**
(coupled transport of zinc ion through **cellulose acetate-plasticizer membranes** in presence of)

RN 540-72-7 HCA

CN Thiocyanic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

HS-C \equiv N

● Na

CC 43-3 (Cellulose, Lignin, Paper, and Other Wood Products)
Section cross-reference(s): 38

ST plasticizer **cellulose acetate membrane**
transport; zinc transport **cellulose acetate membrane**

IT Diffusion
(of zinc ions, through **cellulose acetate**
-plasticizer **membranes** made from mulberry xylem)

IT Mulberry
(xylem, **cellulose acetate-plasticizer**

- membranes** made from, coupled transport of zinc ion through)
- IT Plant tissue
(xylem, mulberry, **cellulose acetate**
-plasticizer **membranes** made from, coupled transport of zinc ion through)
- IT 1662-01-7, Bathophenanthroline
(carrier, for zinc ion, coupled transport through **cellulose acetate-plasticizer membranes** in relation to)
- IT 540-72-7, **Sodium thiocyanate**
(coupled transport of zinc ion through **cellulose acetate-plasticizer membranes** in presence of)
- IT 7647-14-5, Sodium chloride, properties
(coupled transport of zinc ion through **cellulose acetate-plasticizer membranes** in presence of)
- IT 23713-49-7, properties
(coupled transport of, through **cellulose acetate-plasticizer membranes** made from mulberry xylem)
- IT 9004-35-7, **Cellulose acetate**
(plasticizer-contg., **membranes**, made from mulberry xylem, coupled transport of zinc ions through)
- IT 78-51-3 37682-29-4
(plasticizers, **cellulose acetate** contg., **membranes**, made from mulberry xylem, coupled transport of zinc ion through)

L36 ANSWER 15 OF 20 HCA COPYRIGHT 2006 ACS on STN

92:216987 Regenerated cellulose hollow fiber. Ishida, Masamichi; Kamo, Jun; Takemura, Toru; Minami, Shunsuke; Kamada, Kensuke (Mitsubishi Rayon Co., Ltd., Japan). Eur. Pat. Appl. EP 8536 19800305, 32 pp. (English). CODEN: EPXXDW. APPLICATION: EP 1979-301711 19790821.

AB Extruding **cellulose acetate** soln. (I) through an annular slit into a coagulation bath, and hydrolyzing the resulting extrudate with NaOH soln. gave the title product for use as a permeable **membrane** for dialysis and ultrafiltration. Thus, a soln. of I 25, dimethylacetamide (II) 64, H₂O 5, and ZnCl₂ 6 parts was extruded into a 30% aq. II bath to form a tubular extrudate, which was drawn 1.3 times the original length in H₂O, immersed in 3% NaOH soln. contg. 20% AcONa (based on NaOH wt.) for 1 h at 50°, and plasticized with 5% glycerol to give

regenerated cellulose hollow fiber with 63% crystallinity, 81.6% crystallite orientation degree, 112 Å crystallite size, 0.59 g/d wet strength, 13.5% wet elongation, and 3.4 mL/m²·h·mm Hg water permeability.

IT 540-72-7

(in manuf. of regenerated cellulose hollow fibers, from **cellulose acetate**)

RN 540-72-7 HCA

CN Thiocyanic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

HS-C≡N

● Na

IC D01D005-24; B01D013-04

CC 43-3 (Cellulose, Lignin, Paper, and Other Wood Products)
Section cross-reference(s): 63

ST regenerated cellulose hollow fiber manuf; **acetate cellulose** sapon hollow fiber; dialysis hollow fiber **membrane**

IT Saponification

(of **cellulose acetate** fibers, regenerated **cellulose** hollow fibers from)

IT **Membranes** and Diaphragms

(hollow-fiber, regenerated cellulose, for dialysis)

IT 540-72-7 7705-08-0, uses and miscellaneous 10034-81-8
10124-37-5

(in manuf. of regenerated cellulose hollow fibers, from **cellulose acetate**)

L36 ANSWER 16 OF 20 HCA COPYRIGHT 2006 ACS on STN

84:122660 Permeabilities to salts and water of macrocyclic polyether-**polyamide membranes**. Shchori, Ehud;
Jagur-Grodzinski, Joseph (Dep. Plast. Res., Weizmann Inst. Sci., Rehovot, Israel). Journal of Applied Polymer Science, 20(3), 773-88 (English) 1976. CODEN: JAPNAB. ISSN: 0021-8995.

GI For diagram(s), see printed CA Issue.

AB The diffusion coeff. of Na⁺ ions in PC-6 (I) [32288-60-1] **membranes**, detd. by desorption expts., varied from 5 +

10-12 in loose PC-6 **membranes** to 1.7×10^{-9} cm²/sec in **membranes** of polymeric alloys contg. 30% poly(vinyl pyrrolidone) (II) [9003-39-8]. **NaSCN** [540-72-7] was strongly adsorbed by PC-6. Replacement of SCN⁻ by Cl⁻ caused a 3-fold decrease in soly. Li⁺ was ≈ 10 times less sol. than Na⁺. The soly. of water in PC-6 was due to the combined hydrophilicities of the amide and ether loops. The mobility of the adsorbed Na⁺ ions in the polymeric network was low. **Membranes** passed from hexafluoroisopropanol or from **NaSCN** solns. in DMF were permselective and highly permeable to water. Water permeation expts. with **membranes** contg. II gave diffusion coeff. in the range $2-5 \times 10^{-7}$ cm²/sec. The apparent energy of activation of the diffusion of Na⁺ in these **membranes** was the same, ≈ 12 kcal, as the energy of activation of the decomplexation of the Na-crown complex. The permeability characteristics PC-6 **membranes** were affected by their history because of reversible changes in the structure of the polymeric network in the presence and absence of absorbed salts. II had a stabilizing effect on the permeability of the **membranes**. Reverse osmosis expts. with PC-6 **membranes** and **membranes** contg. II gave salt rejection values 95-99.5%, and permeabilities to water ≥ 1 order of magnitude greater than those of unmodified arom. **polyamides**.

IT 540-72-7
 (diffusion coeff. of, in crown polyether-**polyamide**
 permselective **membranes**)
 RN 540-72-7 HCA
 CN Thiocyanic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

HS-C \equiv N

● Na

CC 36-5 (Plastics Manufacture and Processing)
 Section cross-reference(s): 61
 ST polyether **polyamide** permselective **membrane**;
 crown **polyamide** permselective **membrane**;
 polyvinylpyrrolidone crown **polyamide** **membrane**;

- osmosis **membrane crown polyamide**
- IT Polyethers
(crown **polyamide-**, permselective **membranes**)
- IT **Polyamides**, uses and miscellaneous
(crown polyether, permselective **membranes**)
- IT Permeability and Permeation
(of salts and water in crown polyether-**polyamide membranes**)
- IT **Membranes**
(permselective, crown polyether-**polyamide**, permeability of)
- IT 9003-39-8
(crown polyether-**polyamide membranes** contg., permeability of)
- IT **540-72-7** 556-65-0 2092-17-3 7647-14-5, properties
(diffusion coeff. of, in crown polyether-**polyamide permselective membranes**)
- IT 32069-37-7 32288-60-1
(**membranes**, permeability of)
- L36 ANSWER 17 OF 20 HCA COPYRIGHT 2006 ACS on STN
- 83:102909 Removal of heavy metal pollutants from aqueous media. Davis, Howard J.; Lee, Leonard A. (Celanese Corp., USA). U.S. US 3872001 19750518, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1973-365792 19730531.
- AB Pollutant heavy metal cations are removed from aq. media by passing the pollutant-contg. aq. media through a substantially water insensitive, flexible base, porous polymeric film thereby forming a complex with the pollutant metal cations to be removed from the aq. media. Generally, any type of polymer contg. a substantial no. of free hydroxyl groups, ≥ 0.01 -3/g, may be utilized as long as the polymer is filmforming, and that the film is capable of being rendered porous, preferably microporous. Examples of the types of polymers which may be utilized include polyolefins, polyacetates, **polyamides**, polyesters, polyalkylene sulfides, and polyarylene oxides, which have been copolymd. with minor amts. of hydroxyl-contg. monomers. Likewise, hydroxyl-contg. acrylics and celluloseics may be utilized. In operation, the film bed or column which has been utilized to remove the heavy metal pollutants from water may be regenerated by reaction with certain regenerative ions which when passed over the metal complex form a more stable complex with the heavy metal pollutant ion such as Hg than is formed between

the chelated substrate and the heavy metal pollutant. An example of such a regenerative ion for Hg and EDTA complexes is K or **Na thiocyanate**. In continuous operation a preferred method involves the use of a long belt of the desired acid-contg. film. Water is passed through it and the belt is continuously moved from contact with the polluting water to contact with a thiocyanate soln. which acts to regenerate the chelating sites on the belt.

IC C02B

INCL 210058000

CC 60-2 (Sewage and Wastes)

Section cross-reference(s): 37

IT **Membranes**

(**cellulose acetate** and **cellulose acetate-phthlate** and EDTA, for metal removal from waste water)

IT Waste water treatment

(metal removal, **membranes** from **cellulose acetate** and **cellulose acetate-phthlate** and EDTA for)

IT 60-00-4, uses and miscellaneous

(**cellulose acetate membrane** -treated, for metal removal from waste water)

IT 9004-35-7 9004-38-0

(**membranes** contg., EDTA-treated, for metal removal from waste water)

IT 7439-97-6, uses and miscellaneous 7440-43-9, uses and miscellaneous

(removal of, from waste water, EDTA-treated **cellulose acetate membranes** for)

L36 ANSWER 18 OF 20 HCA COPYRIGHT 2006 ACS on STN

67:109606 p-(1,2,4-Thiadiazol-5-ylazo)anilines. (Eastman Kodak Co.).

Fr. FR 1456265 19661021, 11 pp. (French). CODEN: FRXXAK.

APPLICATION: FR 19651129.

GI For diagram(s), see printed CA Issue.

AB Compds. of the general formula I give red and violet dyeings on **cellulose acetate**, modacrylics, **polyamides**

, and polyesters. Thus, a mixt. of 76 g. thiourea, 142 g. MeI, and 330 ml. MeOH was refluxed for 1 hr. to give a mixt. contg.

RSC(NH₂):NH (II, R = Me). A soln. of 100 g. **NaSCN** in 600

ml. MeOH was added, the mixt. cooled to -15°, treated with

NaOMe (46 g. Na and 600 ml. MeOH), treated with a soln. of 160 g. Br

in 425 ml. MeOH, and agitated for 2 hrs. at room temp. to give 71% III (X = MeS) (IV), m. 139-42° (H₂O). Similarly prepd. were the following III (X, m.p., and % yield given): EtS, 92-6° (C₆H₆-hexane), -; PrS, 74° (H₂O-EtOH), 77.2; iso-PrS, -, -; tert-BuS, 203°, -. The following II were also prepd. (R and m.p. given): Pr, 59-61° (EtOH-Et₂O); iso-Pr, 76°. A soln. of 7.25 g. IV in 100 ml. HOAc was heated, cooled to 30°, treated with 20.5% H₂O₂ (30% soln.), and agitated at 50° to give 65.2% III (X = MeSO₂), m. 196.8°. Similarly prepd. were the following IV (X and m.p. given): EtSO₂, 136-9°; PrSO₂, -; tert-BuSO₂, -. IV (2.94 g.) was diazotized and coupled with 0.82 g. m-MeC₆H₄N(CH₂CH₂CN)CH₂CH₂OH to give 70.3% I (X = MeS, Y = H, Z = Me, R = CH₂CH₂CN, R' = CH₂CH₂OH), red on **cellulose acetate**, red-orange on polyesters, and violet-red on **polyamides** and polyacrylonitrile. Similarly prepd. were the following I (R, R', X, Y, Z, and shades on **cellulose acetate**, polyesters, **polyamides**, and modacrylics given): Et, CH₂CH₂O₂CNHPH, MeS, H, H, red rose, orange-red, wine red, -; Et, CH₂CH₂NHSO₂Me, MeS, H, Me, violet-red, red-rose, violet, violet; cyclohexyl, CH₂CH₂OH, Me, H, H, red-violet, red, violet-red, violet; Et, CH₂CH₂CN, MeSO₂, H, Me, red-violet, rose-red, -, red-violet; CH₂CH₂CN, PhCH₂, MeSO₂, H, H, wine red, -, -, -; CH₂CH₂CN, CH₂CH₂OH, MeSO₂, H, Me, wine red, -, -, -; CH₂CH₂OH, CH₂CH₂OH, EtS, MeO, AcNH, violet, violet, -, -; CH₂CH₂OH, CH₂CHF₂, EtS, H, Me, -, -, -, -; CH₂CH₂OH, CH₂CH₂OH, EtSO₂, H, Cl, red-violet, red-violet, red-violet, red-violet; CH₂CH₂CN, CH₂CH₂OAc, MeS, H, Me, -, -, -, -; CH₂CH₂CN, CH₂CH₂OC(S)NHPH, MeS, H, H, -, -, -, -; H, CH₂CH(OH)CH₂OH, PrS, EtO, AcNH, deep violet, deep violet, deep violet, deep violet; CH₂CH₂CN, CH₂CH₂OH, tert-BuSO₂, H, Me, wine red, -, -, -.

IC C09B; D06P

CC 40 (Dyes, Fluorescent Brightening Agents, and Photosensitizers)

ST POLYESTERS DYES; ANILINES DYES; THIADIAZOLES DYES; AZO MONO DYES;
CELLULOSE ACETATE DYES; MODACRYLICS DYES;
POLYAMIDES DYES

L36 ANSWER 19 OF 20 HCA COPYRIGHT 2006 ACS on STN

55:90231 Original Reference No. 55:17023i,17024a-c Disazo dyes.

Sureau, Robert F. M.; Alicot, Marie J. (Compagnie francaise des matieres colorantes). FR 1224183 19600622 (Unavailable).

APPLICATION: FR .

AB Disazo dyes, derivs. of 2,6-bis-(p-aminophenylazo)benzo[1,2-d:4,5-

d']bisthiazole, with a suitable dispersion agent, dye **cellulose acetate** and **polyamide** fibers from aq. baths in fast colors, red to violet. Their quaternary salts are H₂O sol., dyeing cotton, silk, leather, and polyacrylic fibers blue shades, fast to washing and light. To 27 parts p-phenylenediamine in 450 parts AcOH was added 101 parts **NaSCN**, and in 1 hr., 100 parts Br in 75 parts AcOH at <40°. After 12 hrs. agitation, the filtered product in 2000 parts boiling H₂O was neutralized with 30% Na₂CO₃, filtered off, washed with H₂O, and dried at 70-80°, yielding 53-4 parts 2,6-diaminobenzo[1,2-d:4,5-d']bisthiazole (I). I (8.88 parts), in 20 parts by vol. 66° B.acte.e. H₂SO₄ and 150 parts by vol. 80% AcOH, was tetrazotized and coupled with 16 parts Ph₂NMe (II) in 75 parts by vol. AcOH at 0-5°. After 2 hrs., 750 parts cold H₂O was added, and the ppt. filtered, dissolved in 750 parts cold H₂O, neutralized with AcONa, filtered off, washed with H₂O, and dried at 70° to give 22-3 parts dye. This product (7 parts) was dissolved in 400-500 parts hot PhCl, the soln. was filtered, and 12 parts by vol. Me₂SO₄ in 10 parts PhCl was added to the boiling filtrate. After 3/4 hr., the pptd. dye was filtered, dissolved in H₂O, filtered, and the dye pptd. with ZnCl₂ and NaCl. Acrylic fibers were dyed greenish blue. Replacing II by PhNEt₂ gave a product which dyed **cellulose acetate** bluish red and **polyamides** and polyesters violet-red.

CC 25 (Dyes and Textiles)

IT Dyes

(disazo, 2,6-diaminobenzo[1,2-d:4,5-d']bisthiazole N,N-disubstituted anilines and their quaternary derivs., leather, acrylic polymers, cotton, **polyamides**, polyesters and silk)

L36 ANSWER 20 OF 20 HCA COPYRIGHT 2006 ACS on STN

55:15594 Original Reference No. 55:3071d-h Water-insoluble monoazo dyes. Merian, Ernest (Sandoz Ltd.). CH 346632 19600715 (Unavailable). APPLICATION: CH .

AB The prepn. of dyes of the general formula 2,4,5-Y [(ZCH₂)₂N] (X)C₆H₂N:**NASCN**, where A is a 1,4-phenylene group substituted in the 2-position by a neg. substituent, a 1,4-naphthalene, 2,5-thiophene, a 2,5-thiadiazole, a 2,5-thiazole, or a 2,6-benzothiazole residue, X and Y = H, halogen, Me, Et, MeO, or EtO, and Z = CH₂OH and (or) CH₂CN, is described. Dry NaNO₂ 3.8 added at 60-5° to H₂SO₄ 45, cooled after 1 hr. to 5°,

treated dropwise with EtCO₂H 8 and AcOH 42 and then at 0° with 2,4-MeSO₂(NCS)C₆H₃NH₂ (I) 11.4, the mixt. treated again with EtCO₂H 8 and AcOH 42 and after 3 hrs. with urea 1, mixed with m-MeC₆H₄N(CH₂CH₂OH)₂ (II) 10 in H₂O 50 and 30% HCl 10, treated with NaOAc 100, dild. with H₂O 50 parts, stirred, and filtered after 20 hrs., and the residue washed and dried gave a dye, m. 131°, red in concd. H₂SO₄; it dyes **cellulose acetate** red shades of good fastness. o-MeSO₂C₆H₄NH₂ 51.3, m. 66°, NH₄SCN 285, and H₂O 300 treated dropwise at 60° with CuSO₄.5H₂O 168 in H₂O 525 parts, stirred 1 hr. at 60°, and filtered, the residue boiled with H₂O, and the aq. ext. cooled gave I. A similar run with I and PhN(CH₂CH₂CN)CH₂CH₂OH (III), m. 68°, 10 instead of II 10 parts gave a dye, red in concd. H₂SO₄, which dyes **cellulose acetate** fast orange shades. 2-Amino-6-thiocyanobenzothiazole (m. 198°) 20.7, added to NaNO₂ 7.6 in H₂SO₄ 90 at 60-5°, processed in the usual manner and coupled with III 20 parts gave a dye, m. 164°, orange in concd. H₂SO₄, which dyes bluish red shades. A similar run using 2-amino-5-thiocyanothiazole, m. 142°, 15.7 parts instead of the benzothiazole deriv. gave a dye, m. 130°, yellow in concd. H₂SO₄, which dyes **cellulose acetate** from an aq. dispersion ruby-red, and **polyamide** fibers red-violet shades.

CC 25 (Dyes and Textiles)

=> d 137 1-11 cbib abs hitstr hitind

L37 ANSWER 1 OF 11 HCA COPYRIGHT 2006 ACS on STN

139:360799 Fourteen Protomers Compose the Oligomer III of the Proton-rotor in Spinach Chloroplast ATP Synthase. Seelert, Holger; Dencher, Norbert A.; Muller, Daniel J. (Department of Chemistry, Physical Biochemistry, Darmstadt University of Technology, Darmstadt, D-64287, Germany). Journal of Molecular Biology, 333(2), 337-344 (English) 2003. CODEN: JMOBAK. ISSN: 0022-2836. Publisher: Elsevier.

AB Three fundamentally different chloroplast ATP synthase samples of increasing complexity were visualized by at. force microscopy. The samples are distinguishable in respect to the isolation technique, the detergent employed, and the final subunit compn. The homo-oligomer III was isolated following SDS treatment of ATP synthase, the proton-turbine III+IV was obtained by blue-native

electrophoresis, and complete CFO was isolated by anion exchange chromatog. of NaSCN splitted ATP synthase. In all three ATP synthase subcomplexes 14 and only 14 circularly arranged subunits III composed the intact transmembrane rotor. Therefore, 14 protomers built the **membrane**-resident proton turbine. The obsd. stoichiometry of 14 is not a biochem. artifact or affected by natural growth variations of the spinach, as previously suggested. A correlation between the presence of subunit IV in the imaged sample and the appearance of a central protrusion in the narrower orifice of the oligomeric cylinder III14 has been obsd. In contrast to current predictions, in chloroplast FO the subunit IV can be found inside the cylinder III14 and not at its periphery, at least in the reconstituted 2D arrays imaged.

CC 7-3 (Enzymes)

L37 ANSWER 2 OF 11 HCA COPYRIGHT 2006 ACS on STN

138:29585 Ultrafiltration of surfactant solutions. Urbanski, Radoslaw; Goralska, Elzbieta; Bart, Hans-Joerg; Szymanowski, Jan (Institute of Chemical Technology and Engineering, Poznan University of Technology, Poznan, 60-965, Pol.). Journal of Colloid and Interface Science, 253(2), 419-426 (English) 2002. CODEN: JCISA5. ISSN: 0021-9797. Publisher: Elsevier Science.

AB The ultrafiltration of colloid solns. contg. CTAB, SDS, and alkylpolyglucoside (APG) through hydrophilic **membranes** with a 10,000 mol. wt. cut-off from regenerated cellulose was studied. The effects of exptl. conditions on the permeate flux and secondary resistance were detd. Both CTAB and APG were convenient surfactants for ultrafiltration, as high permeability of their solns. was obsd. The secondary resistance was always significantly lower than the resistance of the **membrane**. Addnl., electrolytes had a relatively weak neg. effect upon ultrafiltration fluxes. SDS was the least convenient surfactant due to formation of a gel layer, susceptibility of its colloid solns. to electrolyte content, and a high secondary resistance. The concn. of the surfactant in the permeate could increase above crit. micelle concn., esp. under conditions inducing high polarization. Migration of CTAB on the surface of pores seemed responsible for that transfer.

CC 66-4 (Surface Chemistry and Colloids)

IT 144-55-8, Sodium hydrogencarbonate, uses 540-72-7, **Sodium thiocyanate** 7647-14-5, Sodium chloride, uses
(effect on **ultrafiltration** of micellar surfactant

solns.)

L37 ANSWER 3 OF 11 HCA COPYRIGHT 2006 ACS on STN

123:316177 Producing method for polyacrylonitrile filtration

membrane. Cai, Bangxiao (Hangzhou Water Treatment Technology Research and Development Center, Peop. Rep. China). Faming Zhuanli Shenqing Gongkai Shuomingshu CN 1103604 A 19950614, 5 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 1994-116066 19940915.

AB The process is carried out by casting a polyacrylonitrile contg. sodium thiocyanate aq. soln. into a film and coagulating in water to form a **membrane**.

IC ICM B01D071-42

CC 38-2 (Plastics Fabrication and Uses)

ST casting polyacrylonitrile filtration **membrane**;
sodium thiocyanate polyacrylonitrile
filtration membrane

IT Molding of plastics and rubbers
(casting, film, producing method for polyacrylonitrile filtration
membrane)

IT **Membranes**
(hollow-fiber, producing method for polyacrylonitrile filtration
membrane)

IT Filters and Filtering materials
(**membranes**, producing method for polyacrylonitrile
filtration **membrane**)

IT 540-72-7, Sodium thiocyanate
(producing method for polyacrylonitrile filtration
membrane)

IT 25014-41-9, Polyacrylonitrile
(producing method for polyacrylonitrile filtration
membrane)

L37 ANSWER 4 OF 11 HCA COPYRIGHT 2006 ACS on STN

120:56595 Process for removing colored components from recovered inorganic solvents for polyacrylonitrile. Kawasaki, Shiro; Kohara, Noriyuki (Japan Exlan Co., Ltd., Japan). Eur. Pat. Appl. EP 556003 A1 19930818, 6 pp. DESIGNATED STATES: R: ES, FR, GB. (English). CODEN: EPXXDW. APPLICATION: EP 1993-300873 19930205. PRIORITY: JP 1992-61253 19920214.

AB The title process, which does not cause an appreciable decrease in the conc. of active components, consists of using a reverse osmosis

membrane whose NaCl rejection is in the range of 10-97% under a permeation pressure of ≤ 20 kg/cm². Thus, permeation of an aq. soln. contg. Na thiocyanate (I) by using a reverse osmosis **membrane** gave a permeate having I 15.1%, and APHA color 0, vs. 15.2, and 180, resp., before permeation.

IC ICM B01D061-02

ICS C02F001-44

CC 40-2 (Textiles and Fibers)

Section cross-reference(s): 37

ST thiocyanate aq soln polyacrylonitrile solvent; acrylic fiber thiocyanate solvent decoloration; reverse osmosis **membrane** decoloration solvent; recovered polyacrylonitrile solvent decoloration

IT Reverse osmosis

(**membranes**, for removal of colored components from recovered inorg. solvents for polyacrylonitrile)

IT 540-72-7, **Sodium thiocyanate** 7646-85-7, Zinc

chloride, uses 7697-37-2, Nitric acid, uses

(aq. solns., **recovered**, removal of colored components from, as solvents for polyacrylonitrile)

L37 ANSWER 5 OF 11 HCA COPYRIGHT 2006 ACS on STN

118:209008 Pretreatment of samples with sodium thiocyanate for microorganism determination by immunoassay. Yokoyama, Kazue; Myazaki, Choko (Meidensha Electric Mfg. Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 05034350 A2 19930209 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1991-188442 19910729.

AB For microorganism (e.g. Escherichia coli) detn. in a suspension by **membrane** filter concn., sonication, and subsequent immunoassay, the sample is pretreated with Na thiocyanate (≥ 0.04 M to improve the microorganism recovery in the filtration and, thus, the anal. accuracy, reproducibility, and reliability.

IC ICM G01N033-569

ICS G01N033-531

CC 9-10 (Biochemical Methods)

Section cross-reference(s): 10

IT Escherichia coli

Microorganism

(detn. of, by immunoassay, sample pretreatment with **sodium thiocyanate** for filtration in)

IT Immunoassay

(microorganism detn. by, sample pretreatment with **sodium thiocyanate** for filtration in)

IT Feces

(Escherichia coli detn. in, by immunoassay, sample pretreatment with **sodium thiocyanate** for filtration in)

IT Filters and Filtering materials

(**membranes**, microorganism suspension concn. on, for immunoassay, sample pretreatment with sodium thiocyanate in relation to)

L37 ANSWER 6 OF 11 HCA COPYRIGHT 2006 ACS on STN

117:147420 Isolation of Casparian strips from pea roots. Karahara, Ichirou; Shibaoka, Hiroh (Fac. Sci., Osaka Univ., Toyonaka, 560, Japan). Plant and Cell Physiology, 33(5), 555-61 (English) 1992. CODEN: PCPHA5. ISSN: 0032-0781.

AB Casparian strips were isolated from roots of pea seedlings. The plasma **membrane** was firmly attached to the wall of the individual cells in the isolated Casparian strip. The outer electron-dense lamella of the plasma **membrane**, which is characteristic of the **membrane** of the Casparian strip, was not removed from the isolated Casparian strip by treatment with either 1 M NaCl or 2 M sodium thiocyanate. Although treatment with 1% Triton X-100 disrupted the lamellar structure of the **membrane** and removed most of the electron-dense material of the outer lamella, no detectable polypeptides were extd. by treatment of isolated Casparian strips with 1% Triton X-100. Small amts. of electron-dense material remained after treatment with Triton X-100 and this material seemed to be removed almost entirely by subsequent treatment of the same sample with 2% SDS. Since polypeptides of 46, 30 and 20 kDa, which were detected in the ext. obtained by treatment with SDS, were not detected in an ext. of total cell walls of pea roots, it seems possible that these polypeptides are specific to the Casparian strip and, therefore, that they may be responsible singly or together for the adhesion of the plasma **membrane** to the cell wall at the Casparian strip.

CC 11-8 (Plant Biochemistry)

IT 540-72-7, **Sodium thiocyanate** 9002-93-1, Triton X-100

(in isolation of Casparian strips from pea root)

L37 ANSWER 7 OF 11 HCA COPYRIGHT 2006 ACS on STN

115:15572 Virus inactivation in blood products by **sodium**

thiocyanate and **ultrafiltration**. Hrinda, Michael

E.; D'Alisa, Rose; Tarr, George Crissman (Rorer International

(Overseas), Inc., USA). PCT Int. Appl. WO 9015613 A1 19901227, 39

pp. DESIGNATED STATES: W: CA, JP; RW: AT, BE, CH, DE, DK, ES, FR,

GB, IT, LU, NL, SE. (English). CODEN: PIXXD2. APPLICATION: WO

1990-US3355 19900613. PRIORITY: US 1989-366855 19890615.

AB Viruses are inactivated in blood products by treatment with a disinfectant, preferably NaSCN, in combination with a phys. process, preferably ultrafiltration. Human immunodeficiency virus-infected factor IX soln. (2 mL) was treated with 1 mL buffer (0.01 M Tris-HCl and 0.02 M EDTA, pH 8) and 1 mL 6 M NaSCN to inactivate the virus. Further inactivation occurred by ultrafiltration, using 6.2 nm pore-diam. **membrane**. The method does not cause protein denaturation.

IC ICM A61K035-14

ICS A61K035-16; A61K037-02; C12N009-06; C07K003-06; C07K003-28;
C07K003-02

CC 63-3 (Pharmaceuticals)

IT Antibodies

(against hepatitis and human immunodeficiency virus, virus inactivation in, by **sodium thiocyanate** and **ultrafiltration**)

IT Virus, animal

(inactivation of, in blood products, by **sodium thiocyanate** and **ultrafiltration**)

IT Blood corpuscle

(lysate, virus inactivation in, by **sodium thiocyanate** and **ultrafiltration**)

IT Blood

(products, virus inactivation in, by **sodium thiocyanate** and **ultrafiltration**)

IT Blood plasma

Blood serum

Albumins, biological studies

Fibronectins

Globulins, biological studies

Hemoglobins

Immunoglobulins

Interferons

Orosomucoids

Prealbumins
 Proteins, specific or class
 Transferrins
 (virus inactivation in, by **sodium thiocyanate**
 and **ultrafiltration**)
 IT Lipoproteins
 (α -1-, virus inactivation in, by **sodium**
 thiocyanate and **ultrafiltration**)
 IT Immunoglobulins
 (A, virus inactivation in, by **sodium**
 thiocyanate and **ultrafiltration**)
 IT Immunoglobulins
 (G, virus inactivation in, by **sodium**
 thiocyanate and **ultrafiltration**)
 IT Immunoglobulins
 (M, virus inactivation in, by **sodium**
 thiocyanate and **ultrafiltration**)
 IT Proteins, specific or class
 (c, virus inactivation in, by **sodium**
 thiocyanate and **ultrafiltration**)
 IT Virus, animal
 (hepatitis B, inactivation of, in blood products, by
 sodium thiocyanate and **ultrafiltration**
)
 IT Virus, animal
 (human immunodeficiency, inactivation of, in blood products, by
 sodium thiocyanate and **ultrafiltration**
)
 IT Lymphokines and Cytokines
 (interleukin 2, virus inactivation in, by **sodium**
 thiocyanate and **ultrafiltration**)
 IT Agglutinins and Lectins
 (isolectins, virus inactivation in, by **sodium**
 thiocyanate and **ultrafiltration**)
 IT Proteins, specific or class
 (retinol-binding, virus inactivation in, by **sodium**
 thiocyanate and **ultrafiltration**)
 IT Globulins, biological studies
 (thyroxine-binding, virus inactivation in, by **sodium**
 thiocyanate and **ultrafiltration**)
 IT Globulins, biological studies
 (α -, virus inactivation in, by **sodium**

- thiocyanate and ultrafiltration)**
- IT Globulins, biological studies
Lipoproteins
(β -, virus inactivation in, by **sodium thiocyanate and ultrafiltration)**
- IT Globulins, biological studies
(γ -, virus inactivation in, by **sodium thiocyanate and ultrafiltration)**
- IT 9013-79-0, Esterase
(serum, virus inactivation in, by **sodium thiocyanate and ultrafiltration)**
- IT 9000-94-6, Antithrombin III 9001-24-5, Blood-coagulation factor V
9001-25-6, Blood-coagulation factor VII 9001-26-7, Prothrombin
9001-27-8, Blood-coagulation factor VIII 9001-28-9,
Blood-coagulation factor IX 9001-29-0, Blood coagulation factor X
9013-56-3, Blood-coagulation factor XIII 9031-37-2, Ceruloplasmin
9031-96-3, Peptidase 9035-58-9, Blood-coagulation factor III
105913-11-9, Plasminogen activator
(virus inactivation in, by **sodium thiocyanate and ultrafiltration)**
- IT 9001-90-5, Plasmin
(α 2-inhibitor, virus inactivation in, by **sodium thiocyanate and ultrafiltration)**
- L37 ANSWER 8 OF 11 HCA COPYRIGHT 2006 ACS on STN
102:115349 Formation of cellulose **membranes** for reverse osmosis separation of water-inorganic solute and water-organic solute systems. Farnand, B.; Talbot, F. D. F.; Matsuura, T.; Sourirajan, S. (Dep. Chem. Eng., Univ. Ottawa, Ottawa, ON, K1N 9B4, Can.). Can. Bioenergy R&D Semin., [Proc.], 5th, 189-94. Editor(s): Hasnain, Sadiq. Elsevier Appl. Sci.: London, UK. (English) 1984. CODEN: 53DYA3.
- AB Cellulose (I) [9004-34-6] **membranes** produced by using a Me2SO-paraformaldehyde solvent system were useful for reverse osmosis sepn. of inorg. electrolytes involving divalent anions at low solute concns. Comparison of sepn. of different inorg. solutes at feed solute concn. 0.0045 M revealed that Cl- with divalent cations is less sepd. than that with monovalent ones, while Na salts with divalent anions are more sepd. than those with monovalent ones. I **membranes** also exhibited high sepn. for long-chain alcs. due to the repulsive force working between I and alc. solutes. However, the development of **membranes** with smaller av.

pore radii than (15-17) + 10-10 m is necessary to achieve an effective sepn. of EtOH from 10% aq. EtOH soln.

IT 540-72-7P

(sepn. of, in aq. solns., by cellulose
membranes)

RN 540-72-7 HCA

CN Thiocyanic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

HS- $C \equiv N$

● Na

CC 43-3 (Cellulose, Lignin, Paper, and Other Wood Products)

ST inorg solute sepn cellulose **membrane**; alc sepn cellulose
membrane; reverse osmosis sepn cellulose **membrane**

IT Alcohols, preparation

Ethers, preparation

Ketones, preparation

Salts, preparation

(sepn. of, in aq. solns., by cellulose **membranes**)

IT Osmosis

(reverse, **membranes**, cellulose, for sepn. of inorg. and
org. solutes, from aq. solns.)

IT **Membranes**

(reverse-osmosis, cellulose, for sepn. of inorg. and org.
solute, from aq. solns.)

IT 9004-34-6, uses and miscellaneous

(**membrane**, sepn. by, of inorg. and org. solutes, from
aq. solns.)

IT 50-70-4P, preparation 56-81-5P, preparation 57-50-1P,
preparation 62-53-3P, preparation 67-63-0P, preparation
71-36-3P, preparation 71-41-0P, preparation 75-65-0P,
preparation 78-83-1P, preparation 78-92-2P 98-86-2P,
preparation 100-66-3P, preparation 103-73-1P 106-48-9P
108-83-8P 108-95-2P, preparation 111-27-3P, preparation
111-87-5P, preparation 540-72-7P 563-80-4P 628-81-9P
7447-40-7P, preparation 7487-88-9P, preparation 7631-99-4P,
preparation 7632-00-0P 7647-14-5P, preparation 7647-15-6P,
preparation 7647-17-8P, preparation 7681-49-4P, preparation

7681-55-2P 7681-82-5P, preparation 7757-82-6P, preparation
7775-09-9P 7786-30-3P, preparation 7789-38-0P 7791-11-9P,
preparation 10043-52-4P, preparation 10361-37-2P, preparation
10476-85-4P 12125-02-9P, preparation
(sepn. of, in aq. solns., by cellulose
membranes)

L37 ANSWER 9 OF 11 HCA COPYRIGHT 2006 ACS on STN

92:54575 Radioreceptor assay of TSH. Binding of ^{125}I -TSH to the human thyroid receptor and the interaction of long-acting thyroid stimulator-immunoglobulin G. Endo, Keigo (Sch. Med., Kyoto Univ., Kyoto, Japan). Nippon Naibunpi Gakkai Zasshi, 55(10), 1249-60 (Japanese) 1979. CODEN: NNGZAZ. ISSN: 0029-0661.

AB Human thyroid gland homogenates were centrifuged (104 + g), and the ppts. were suspended in 10 mM Tris buffer (pH 7.5), contg. 50 mM NaCl and 0.91% bovine serum albumin, for use as the **membrane** TSH receptor (TSHR). ^{125}I -labeled TSH was purified by incubation with the TSHR suspension at 37° for 30 min., elution of the sediments with 2 M NaSCN, gel **filtration** through a G 100 column using the buffer-NaCl soln., and collection of the 2nd peak. TSHR showed an assocn. const. of $1.5 \times 10^8 \text{ M}^{-1}$ for TSH. Interference with the specific binding by TSHR of TSH was produced by the long-acting thyroid stimulator (IgG) of serum from patients with Graves' disease but not by normal IgG, T3, or T4. The adenylyl cyclase activity of TSHR was increased with increased binding of TSH to TSHR.

CC 9-5 (Biochemical Methods)
Section cross-reference(s): 2

IT 9034-48-4
(TSH binding by **membrane** receptor interference by)

L37 ANSWER 10 OF 11 HCA COPYRIGHT 2006 ACS on STN

84:185567 Complex formation of ionophores of the dioxaoctane dicarboxylic acid diamide type with alkali and alkaline earth cations. Stability constants in ethanol. Kirsch, Norbert N. L.; Simon, Wilhelm (Lab. Org. Chem., ETH, Zurich, Switz.). Helvetica Chimica Acta, 59(2), 357-63 (German) 1976. CODEN: HCACAV. ISSN: 0018-019X.

AB Stability consts. of NH_4^+ , Li^+ , Na^+ , K^+ , Rb^+ , Mg^{2+} , Cs^+ , Ca^{2+} , Sr^{2+} , and Ba^{2+} complexes with the title noncyclic ligands were detd. potentiometrically at 30° in EtOH using liq. **membrane** cation-sensitive electrodes contg. these ligands. Complexes with

- [Ph₂NCOCH₂OCH₂]₂ were **isolated** for NaSCN, KSCN, Ca(NO₃)₂, Sr(ClO₄)₂, and Ba(ClO₄)₂; these complexes were examd. by DTA and ir spectroscopy. Ir spectra were also detd. for Ba²⁺ and K⁺ complexes with [EtOCO(CH₂)₁₁NMeCOCH₂OCHMe]₂ in EtOH and EtCN.
- CC 68-2 (Phase Equilibriums, Chemical Equilibriums, and Solutions)
Section cross-reference(s): 72
- ST liq **membrane** electrode cation sensitive; alkali noncyclic polyether complex; alk earth noncyclic polyether complex; amide oxaoctane alkali complex; polyether alkali alk earth complex
- IT Electrodes
(cation-sensitive, using noncyclic polyether liq. **membranes**)
- IT **Membranes**
(liq., noncyclic polyether for cation-sensitive electrodes)
- IT Alkali metals, compounds
Alkaline earth compounds
(with noncyclic polyethers, cation sensitive liq. **membrane** electrodes in relation to formation of)
- IT 16,19-Dioxa-13,22-diazatetracontanedioic acid,
13,17,18,22-tetramethyl-14,21-dioxo-, diethyl ester, (R*,R*)-,
alkali and alk. earth metal complexes
(formation of, cation-sensitive liq. **membrane** electrodes in relation to)
- IT 43133-08-0D, Acetamide, 2,2'-[1,2-ethanediylbis(oxy)]bis[N,N-diphenyl-, alkali and alk. earth metal complexes
(formation of, cation-sensitive liq. **membrane** electrodes in relation to)
- IT 43133-08-0 58725-79-4
(liq. **membranes**, for cation-sensitive electrodes)

L37 ANSWER 11 OF 11 HCA COPYRIGHT 2006 ACS on STN

74:135662 Partial resolution of the enzymes catalyzing oxidative phosphorylation. XXIV. Factor required for the binding of mitochondrial adenosine triphosphatase to the inner mitochondrial **membrane**. Knowles, Aileen F.; Guillory, Richard J.; Racker, Efraim (Dep. Biochem. Mol. Biol., Cornell Univ., Ithaca, NY, USA). Journal of Biological Chemistry, 246(8), 2672-9 (English) 1971. CODEN: JBCHA3. ISSN: 0021-9258.

GI For diagram(s), see printed CA Issue.

AB Two sol. proteins isolated from bovine heart mitochondria were required for the conferral of sensitivity of ATPase activity of coupling factor F1 to the energy transfer inhibitor, DCCD

(N,N'-dicyclohexylcarbodiimide) (I). These sol. conferral factors were designated Fc1 and Fc2. Prepns. of Fc2 **purified** from **NaSCN** ext. stimulated the ^{32}Pi -ATP exchange reaction and oxidative phosphorylation in silicotungstate-treated submitochondrial particles. Treatment of TUA (trypsin, urea, and alkaline pH prepn.) particles with silicotungstate decreased their ability to bind ATPase (F1). The addn. of Fc2 restored the ability to bind ATPase. It is proposed that Fc2 is a component which links the mitochondrial ATPase to the inner **membrane**.

CC 3 (Enzymes)

ST ATPase mitochondria inner **membrane**; binding factor
mitochondrial ATPase

IT Mitochondria

(**membranes**, adenosine triphosphatase binding by inner,
protein factors in)

IT 9000-83-3, Phosphatases, adenosine tri-

(mitochondrial inner **membrane** binding of, protein
factors in)